

From the National Commission for Wildlife Conservation and Development,  
National Wildlife Research Center, Taif.

## GESTATION DIAGNOSIS BY ULTRASONOGRAPHY IN A CAPTIVE HERD OF ARABIAN ORYX (*ORYX LEUCORYX*)

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### Introduction

Arabian oryx (*Oryx leucoryx*) was extinct in the wild in 1972. In 1986, the "National Commission for Wildlife Conservation and Development" began a reintroduction project and set up a captive breeding programme at the "National Wildlife Research Center", in Taif, Saudi Arabia (ABUZINADA et al., 1988).

A tuberculosis outbreak occurred in the founder stock in 1986. Drastic sanitary and medical measures were undertaken to face the problem (GRETH et al., in press). Today, calves are removed from dams immediately after birth in order to avoid contamination by milk or inhalation. These calves, called the B generation, are hand-reared and become rather tame when they are adult. Their offspring are reared by their mothers in social groups kept in 0.5 ha enclosures. They are released to protected areas at the age of nine months.

Arabian oryx is a polyoestrous species. The first postpartum ovulation occurs 18 days after calving. Oestrus length is 22 days, and one cycle lasts 40 days. The length of gestation is 257 days. In order to increase the production of C animals, transrectal ultrasonography (KIRBERGER, 1989; CHEVALIER, 1988; ADAMS et al., 1991) is widely used in captive breeding at least for the following reasons:

- Early diagnosis of gestation,
- Detection of infertility problems,
- Detection of social incompatibility among males and females.

### Material

For four years, we have been using a real-time KONTRON scanner, SIGMA 1 SC model, equipped with a 5.0 Mhz sectorial transducer, 110 mm in length. Maximum exploitation depth is 18 cm. The scanner is supplied with a portable 220 Volt generator.

A restraining box has been specially built to decrease stress on females and improve the safety of handlers during examination.

### Methods

After 40 days of association with a male, the suited female (when she is not nulliparous) is examined. If no fecundation is detected, the female is kept with the same male and checked regularly on a monthly basis until pregnancy can be confirmed.

Each female is starved for 36 hours before the exam. So, guts are not full of faeces, and better viewing is possible of the uterine tract. The oryx is caught by hand without tranquillization. They are blindfolded, and the female is placed in the restraining box. Pellets are provided ad libitum to keep the animal busy.

After manual removal of faeces out of the rectum, the transducer is covered with gel, inserted into the rectum about 10 to 15 cm deep and is directed over the reproductive organs. On detection of the gestation status, the female is released.

The entire manipulation takes about ten minutes.

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## Results

Shown are different views recorded at Taif during oryx ultrasonography:

- (a) Diagnosis of non gestation: the bladder is very dark, and the uterine body is shown in transverse section.
- (b) 30 days of gestation: Roughly spherical accumulation of fluid is visible at the base of uterus, but embryo and cotyledons are still not detected.
- (c) 40 days: Examination at this stage reveals presence of embryo and cotyledons.

With this kind of scanner and use of an external transducer in transrectal position, reliability of results is about 95% between 30 and 60 days of gestation. After 60 days, reliability tends to decrease because of larger size and lower position of the foetus.

## Discussion

The following advantages may be claimed for this examination, compared to hormonal dosages :

- Low cost,
- Reliability,
- Real-time results,
- Quick manipulation without any chemical tranquillization.

Different types of ultrasound systems are now available. Detection results in our breeding unit certainly would have been better, had an internal linear transducer been used in advanced stages of pregnancy (ADAMS et al., 1991).

The main problem we have to face is the risk of mechanical abortion when stressed females require strong handling. For the past two years, the frequency of such abortions was estimated between 3 and 5%.

Ultrasonography cannot be used for pregnancy detection in wild oryx without tranquillization or anaesthesia (ANCRENAZ, in press; GRETH et al., 1993). No gestation diagnostic test kit, using faeces hormonal dosages, is currently available for the species of the *Hyppotraginae* family. We have planned to develop a specific test for Arabian oryx in the near future in order to study reproduction of our wild re-introduced oryx.

## Conclusion

By the end of 1993, the captive oryx herd numbered 185 individuals, including 115 B generation. The breeding success of the past five years, as well as expertise gained for breeding and management of captive oryx make our goal realistic, to attain 200 B generation oryx by 1998. At that time, we will expect 100 C generation oryx to be born every year.

Management of B generation females by means of ultrasonography, despite of the risk of mechanical abortion, appears to be the best technique to monitor the reproductive status of the animals in our captive herd.

## *Summary*

### *Gestation Diagnosis by Ultrasonography in a Captive Herd of Arabian Oryx (Oryx leucoryx)*

*Ultrasonography has been used for early diagnosis of pregnancy for three years at a breeding unit of Arabian oryx (Oryx leucoryx). Reference is made in this communication to benefits and problems of this mode of examination and its widespread use on wild ungulates.*

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## Zusammenfassung

### Ultrasonographische Trächtigkeitsdiagnose bei der Arabischen Säbelantilope (*Oryx leucoryx*) in Gefangenschaft

Seit drei Jahren wird auf einer Zuchtstation für Oryx-Antilopen (*Oryx leucoryx*) Ultraschall in der Frühdiagnose der Trächtigkeit angewandt. Die Vor- und Nachteile einer routinemäßigen Anwendung dieser Untersuchungsmethodik bei wildlebenden Huftieren werden dargelegt.

## Résumé

### Diagnostic de gestation au moyen de l'échographie utilisée dans un groupe d'oryx d'Arabie (*Oryx leucoryx*) vivant en captivité

L'échographie est utilisée depuis trois ans dans un programme d'élevage d'oryx d'Arabie (*Oryx leucoryx*) pour le diagnostic précoce de gestation. Cette communication présente les modalités pratiques, les avantages et les inconvénients d'une telle technique utilisée de façon routinière sur des ongulés sauvages.

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